Examiner Li
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10/627,098
KANEDA 1-2-2

PTO/SB/97 (09-06)
Approved for use through 03/31/2007. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE



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- Proposed Amendment (5 pgs.)

on **August 8, 2008**
Date

*/J. Joel Justiss/*
Signature

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**ATTORNEY DOCKET NO. KANEDA 1-2-2** **PATENT**

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Applicant: Noriaki Kaneda, *et al.*

Serial No.: 10/627,098

Filed: July 25, 2003

Title: METHOD AND APPARATUS FOR ELECTRONIC EQUALIZATION IN OPTICAL COMMUNICATION SYSTEMS

Grp./A.U.: 2613

Examiner: Shi K. Li Confirmation No.: 3673

Commissioner for Patents
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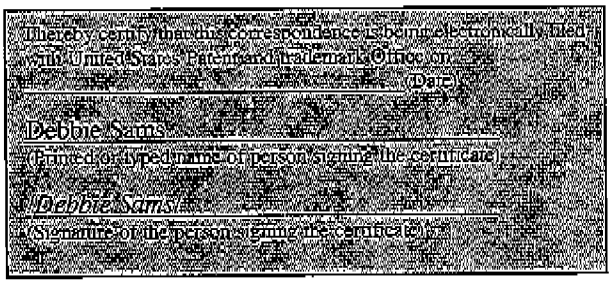


Sir:

**PROPOSED AMENDMENT**

Below is a proposed amendment for the above application. As discussed today with the Examiner, the below proposed amendment should place the application in condition for allowance.

**IN THE CLAIMS:**

1. (Previously Presented) A receiver for receiving an optical signal carrying a sequence of data thereon, comprising:

a photo-detector connected to an optical path, carrying said optical signal, for converting said optical signal to an electrical signal having non-Gaussian noise therein; and

an equalizer for removing intersymbol interference and said non-Gaussian noise from said electrical signal, said equalizer having a plurality of coefficients configured to be updated based upon a least-mean $2N^{th}$-order (LMN) algorithm, where N is greater than one.

2. (Original) The receiver of claim 1, further comprising a controller to update said coefficients based upon a least-mean $2N^{th}$-order (LMN) algorithm, where N is greater than one.

3. (Original) The receiver of claim 2, wherein said equalizer is a finite impulse response filter configured to produce a first output signal responsive to said electrical signal, said first output signal being representative of a sum of the associated electrical signal plus a weighted sum of previous ones of the electrical signal, wherein the previous signals are weighted by said coefficients.

4. (Original) The receiver of claim 3, further comprising:

a slicer to produce a predicted signal for each first output signal received from the finite impulse response filter;

a subtractor to produce an error signal proportional to the difference between said first output signal and a corresponding predicted signal or training signal; and

a controller configured to update said coefficients responsive to the error signal.

5. (Original) The receiver of claim 4, wherein said slicer is configured to produce the predicted signal by adaptively determining a slicing threshold.

6. (Original) The receiver of claim 4, wherein said equalizer is a feed forward equalizer and said controller is configured to update a set of said coefficients $\bar{c}(k+1)$ at a time (k+1) as $\bar{c}(k)+\beta N[e(k)]^{2N-1}\bar{u}(k)$, wherein $\beta$ is a preset step size, $\bar{c}(k)$ and $e(k)$ are respective set of coefficients and error signals at a time k, and $\bar{u}(k)$ is an input signal at the time k.

7. (Original) The receiver of claim 1, wherein the equalizer is a digital filter.

8. (Original) The receiver of claim 2, wherein the equalizer is an analog filter.

Claims 9-13 (Canceled)

14. (Previously Presented) A method for receiving an optical signal, comprising:

converting said optical signal to an electrical signal having non-Gaussian noise therein;

removing intersymbol interference and said non-Gaussian noise from said electrical signal using an equalizer, wherein said equalizer is configured by a plurality of coefficients; and

updating said plurality of coefficients based upon a least-mean $2N^{th}$-order (LMN) algorithm where N is greater than one.

15. (Original) The method of claim 14, wherein said equalizer is a finite impulse response filter that is further configured to produce a first output signal responsive to said electrical signal, said first output signal being representative of a sum of the associated electrical signal plus a weighted sum of previous ones of the electrical signal, wherein the previous signals are weighted by said coefficients.

16. (Previously Presented) The method of claim 15, further comprising the steps of:

producing a predicted signal for each first output signal received from the finite impulse response filter;

producing an error signal proportional to the difference between said first output signal and a corresponding one of the predicted signals or a corresponding training signal; and

updating said coefficients responsive to the error signal.

17. (Original) The method of claim 16, further comprising the step of updating a set of the coefficients $\vec{c}(k+1)$ at a time (k+1) as $\vec{c}(k) + \beta N[e(k)]^{2N-1}\vec{u}(k)$, wherein $\beta$ is a preset step size, $\vec{c}(k)$ and $e(k)$ are respective set of coefficients and error signals at a time k, and $\vec{u}(k)$ is an input signal at the time k.

Claims 18-22 (Canceled)

23. (Previously Presented) The receiver of claim 1, wherein said non-Gaussian noise is substantially described by a first component linearly proportional to a noise distribution in said optical signal and a second component proportional to the square of said noise distribution.

Claim 24 (Canceled)

25. (Previously Presented) The method of claim 14, wherein said non-Gaussian noise is substantially described by a first component linearly proportional to a noise distribution in said optical signal and a second component proportional to the square of said noise distribution.

Claim 26 (Canceled)

## REMARKS/ARGUMENTS

The Applicants have carefully considered this application in connection with the telephonic discussion with the Examiner on August 8, 2008, and respectfully present the foregoing proposed amendment. The proposed amendment cancels Claims 9-11, 13, 18-20, 22 and 24 without prejudice or disclaimer and, as discussed, places the pending claims in condition for allowance. The Applicants therefore earnestly solicit a Notice of Allowance for Claims 1-8, 14-17, 23 and 25.

The Applicants request the Examiner to telephone the undersigned attorney of record at (972) 480-8800 if such would further or expedite the prosecution of the present application.

Respectfully submitted,

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Dated: August 8, 2008

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